sequ nces by residues known to be equivalent with those residues can be effected to produce equivalent peptides having similar biological activities. Moreover, it is known that additional substitutions in the amino acid sequence generally throughout the C-terminal portion of the peptide, i.e. within about ½ of the length of the conotoxin nearest its C-terminus, can be effected in order to produce conotoxins having phylogenetic specificity; thus, such substitutions in

(i) SEQUENCE CHARACTERISTICS:

```
SEQUENCE LISTING
( 1 ) GENERAL INFORMATION:
      ( i i i ) NUMBER OF SEQUENCES: 13
( 2 ) INFORMATION FOR SEQ ID NO:1:
         ( i ) SEQUENCE CHARACTERISTICS:
                  ( A ) LENGTH: 25 amino acids
                  (B) TYPE: amino acid
(D) TOPOLOGY: unkno
        ( i i ) MOLECULE TYPE: peptide
      ( i i i ) HYPOTHETICAL: NO
        ( i v ) ANTI-SENSE: NO
        ( x i ) SEQUENCE DESCRIPTION: SEQ ID NO:1:
                                     Ser
( 2 ) INFORMATION FOR SEQ ID NO2:
         ( i ) SEQUENCE CHARACTERISTICS:
                  ( A ) LENGTH: 30 amino acids
                  ( B ) TYPE: amino acid
                  ( D ) TOPOLOGY: unknown
       ( i i ) MOLECULE TYPE: poptide
       ( x i ) SEQUENCE DESCRIPTION: SEQ ID NO:2:
                                                   Sor Val Ilo Thr Thr Cys Cys Gly Tyr Asp
( 2 ) INFORMATION FOR SEQ ID NO:3:
         ( i ) SEQUENCE CHARACTERISTICS:
                  ( A ) LENOTH: 19 mains acids
                  ( B ) TYPE: amino acid
                  ( D ) TOPOLOGY: unknown
       ( i i ) MOLBCULE TYPE: popide
       ( \mathbf{x} i ) SEQUENCE DESCRIPTION: SEQ ID NO:3:
                                            Asn Ala Ala Cys
                                                                         Pro
        The Cys Gly
(2) INFORMATION FOR SEQ ID NO:4:
```

this region can be carried out to produce valuable equivalent structures. The C-terminus of many of the illustrated peptides is amidated, and the inclusion of a substituted amide at the C-terminus of such peptides, as described hereinbefore, is considered to create an equivalent conotoxin.

Particular features of the invention are emphasized in the claims which follow.

(i i) MOLECULE TYPE: peptide

4 %

-continued

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( A ) LENOTH: 25 amino acids
               ( B ) TYPE: amino acid
               ( D ) TOPOLOGY: unknown
     ( i i ) MOLECULE TYPE: peptide
      ( x i ) SEQUENCE DESCRIPTION: SEQ ID NO:4:
       Gly Cys Cys Gly Sor Tyr Ram Asn Ala Ala Cys His Ram Cys Ser Cys 10 15
       Lys Asp Arg Xaa Sor Tyr Cys Gly Gla
20 25
(*2 ) INFORMATION POR SBQ ID NO5:
       ( i ) SEQUENCE CHARACTERISTICS:
               (A) LENGTH: 25 amino acids
(B) TYPE: amino acid
               ( D ) TOPOLOGY: maknown
      ( i i ) MOLECULE TYPE: peptide
      ( \mathbf{x} i ) SEQUENCE DESCRIPTION: SBQ ID NO:5:
            Cys Cys Gly Ser Tyr Raa Ast Ala Ala Cys His Pro Cys Ser Cys
                                                                                            , 1 5
       Lys Asp Arg Xaa Sor Tyr Cys Gly Gin 25
(2) INFORMATION FOR SEQ ID NO:6:
       ( i ) SEQUENCE CHARACTERISTICS:
               ( A ) LENGTH: 18 amino acids
               ( B ) TYPE: amino scid
               ( D ) TOPOLOGY: unknown
      ( i i ) MOLECULE TYPE: poptide
      ( \mathbf{z} \cdot \mathbf{i} ) SEQUENCE DESCRIPTION: SEQ ID NO:6:
       Cys Cys Gly Val Xan Asn Ala Ala Cys His Xan Cys Val Cys Lys Asn
                                                               10
       Thr Cys
( 2 ) INFORMATION FOR SBQ ID NO:7:
       ( i ) SEQUENCE CHARACTERISTICS:
               ( A ) LENGTH: 46 amino acids
               (B) TYPE: smino acid
               ( D ) TOPOLOGY: unknown
      ( i i ) MOLECULE TYPE: poptido
      ( x i ) SEQUENCE DESCRIPTION: SEQ ID NO:7:
            Xaa Sor Pho Cys Lys Ala Asp Glu Lys Xaa Cys Glu Tyr His Ala
10 15
       Asp Cys Cys Asa Cys Cys Lou Sor Gly Ilo Cys Ala Xaa Sor Thr Asa
20 25 30
       Trp lie Leu Pro Gly Cys Ser Thr Ser Ser Phe Phe Lys 11e
(2) INFORMATION FOR SBQ ID NO:8:
        ( i ) SEQUENCE CHARACTERISTICS:
               ( A ) LENGTH: 19 amino acids
                ( B ) TYPE: amiso acid
                ( D ) TOPOLOGY: usknown
```

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-continued
      ( x i ) SEQUENCE DESCRIPTION: SEQ ID NO:8:
       Gly Cys Cys Sor His Pro Ala Cys Sor Gly Lys Tyr Gln Xas Tyr Cys
       Arg Xas Ser
( 2 ) INFORMATION FOR SBQ ID NO:9:
        ( i ) SEQUENCE CHARACTERISTICS:
                ( A ) LENOTH: 23 amino acids
                ( B ) TYPE: smiso acid
                ( D ) TOPOLOGY: unknown
      ( i i ) MOLECULE TYPE: peptide
      ( \mathbf{x} i ) SEQUENCE DESCRIPTION: SEQ ID NO:9:
             Xaa Xaa Cys Cys Lou Tyr Gly Lys Cys Arg Arg Tyr Xaa Gly Cys
5 10 15
        Ser Ser Ala Ser Cys Cys Gln
20
( 2 ) INFORMATION FOR SBQ ID NO:10:
        ( i ) SEQUENCE CHARACTERISTICS:
                ( A ) LENGTH: 27 amino acids
                ( B ) TYPE: amino acid
                ( D ) TOPOLOGY: unknown
      ( i i ) MOLECULE TYPE: peptide
      ( \mathbf{x} i ) SEQUENCE DESCRIPTION: SEQ ID NO:10:
        Cys Lys Thr Tyr Ser Lys Tyr Cys Kan Ala Asp Ser Kan Cys Cys Thr
( 2 ) ÎNFORMATION FOR SEQ ID NO:11:
        ( i ) SEQUENCE CHARACTERISTICS:
                ( A ) LENGTH: 35 amiso scids
( B ) TYPE: amiso scid
                ( D ) TOPOLOGY: unknown
      ( i i ) MOLECULE TYPE: peptide
      ( \times i ) SEQUENCE DESCRIPTION: SEQ ID NO:11:
        Ser Thr Ser Cys Met Glu Ala Gly Ser Tyr Cys Gly Ser Thr Thr Arg
        lle Cys Cys Gly Tyr Cys Ala Tyr Phe Gly Lys Lys Cys 11e Asp Tyr 20 25 30
        ( 1 ) SEQUENCE CHARACTERISTICS:
                ( A ) LENGTH: 27 amino acids
( B ) TYPE: amino acid
                 ( D ) TOPOLOGY: maknown
```

- (2) INFORMATION POR SEQ ID NO:12:
 - (i i) MOLECULE TYPE: peptide
 - ($\mathbf{x} \cdot \mathbf{i}$) SEQUENCE DESCRIPTION: SEQ ID NO:12:
 - Gly Glu Xaa Xaa Val Ala Lys Met Ala Ala Xas Leu Als Arg Xaa
 - llo Ala Lys Gly Cys Lys Val Asn Cys Tyr Pro